Understanding Basic Concept of Electrical and Electronic Systems

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18. DARLINGTON COMMON EMITTER

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18.0 Abstract:

To increases the voltage gain of the amplifier, multiple amplifier are connects in cascade. The output of one amplifier is the input to another stage. In this way the overall voltage gain can be increased, when number of amplifier stages are used in succession it is called a multistage amplifier or cascade amplifier. The load on the first amplifier is the input resistance of the second amplifier. The various stages need not have the same voltage and current gain. In practice, the earlier stages are often voltage amplifiers and the last one or two stages are current amplifiers. The voltage amplifier stages assure that the current stages have the proper input swing. The amount of gain in a stage is determined by the load on the amplifier stage, which is governed by the input resistance to the next stage. Therefore, in designing or analyzing multistage amplifier, we start at the output and proceed toward the input.

The beta dc of the transistor limits the maximum achievable input resistance you can get from a given emitter-follower circuit. One way to boost input resistance is to use a Darlington pair. The collectors of two transistors are connected and the emitter of the first derives the base of the second.